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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/669,790

09/25/2003

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EXAMINER

SCHAFER, JONATHAN C

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/669,790	Applicant(s) SOGAWA, YOSHIYUKI	
	Examiner JONATHAN C. SCHAFER	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10 and 12-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10 and 12-18 is/are rejected.
- 7) ☒ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/15/2008</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/21/2008 has been entered.

Response to Amendment

1. Applicant's response to the last Office Action, filed 02/21/2008, has been entered and made of record.
2. Applicant has amended claims 1-8, 10 and 12-13. Claims 9 and 11 have been canceled. Claims 1-8, 10 and 12-18 are currently pending.

Response to Arguments

3. Applicant's arguments with respect to claim 1-8, 10 and 12-18 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-8, 10 and 12-17 rejected under 35 U.S.C. 102(e) as being anticipated by Tsuji et al. (U.S. Patent Number 6,327,536).

1. A stereoscopic image processing apparatus for calculating a parallax between a pair of stereographic images, comprising:

correlation evaluating means for evaluating a correlation of brightness between a first pixel block provided in one of said pair of stereographic images and a second pixel block provided in the other of said pair of stereographic images; and

Tsuji discloses a parallax calculating apparatus which comprises a correlation evaluating means that evaluates a correlation between pixel blocks based on their luminance values (col. 5, l. 20-35 & Fig. 9 & Fig. 11).

region size changing means for changing over a size of said first and second pixel blocks in evaluating said correlation.

Tsuji clearly teaches a region size changing means as can be seen in figures 9-11 of the disclosure.

2. The stereoscopic image processing apparatus according to claim 1, wherein said size of said first and second pixel blocks is changed in accordance with an area where said first pixel block is located in the respective pair of images.

Tsuji discloses changing the size of the pixel blocks (Fig. 9 R1 and R2) in accordance with an area where said first pixel block is located (Fig. 9 R1 and R2a).

3. The stereoscopic image processing apparatus according to claim 1, further comprising a boundary determining section, the boundary determining section being configured to divide the stereographic image into two areas, an upper area and a lower area, by a horizontal boundary line.

Tsuji clearly discloses dividing the stereographic image into an upper and lower section with a horizontal boundary line (Fig. 5).

4. The stereoscopic image processing apparatus according to claim 3, wherein the region size changing means changes said size of said first and second pixel blocks to a first size when said first pixel block is located in said lower area.

Tsuji discloses changing the size of the pixel first and second pixel blocks (Fig. 9 & 11, R1, R2 and R4) when said first pixel block is located at least partially in the lower area (Fig. 5).

5. The stereoscopic image processing apparatus according to claim 2, wherein said area of the stereographic images is divided into a plurality of areas and said size of said first and second pixel blocks is changed to a respective specified size of said first pixel block in accordance with said respective areas where said first pixel block is located.

Tsuji discloses dividing the area of the stereographic images into a plurality of areas (Fig. 5) and the size of the pixel blocks (Fig. 9-11) are changed based on where they are in the image.

6. The stereoscopic image processing apparatus according to claim 1, wherein said first and second pixel blocks have a first size and a second size, the second size being larger than said first size.

In the invention disclosed by Tsuji when the pixel blocks surrounding the target object shrink as in figure 9 then the pixel blocks of everything else must grow in order to fully cover the area as seen in figure 5.

7. The stereoscopic image processing apparatus according to claim 1, wherein the region size changing means changes said size of said first and second pixel blocks is changed in accordance with imaging conditions, the imaging conditions including rain, fog, snow, backlight, nighttime, snow on road, stain or droplet on front windshield.

In the invention disclosed by Tsuji when night time operation commences (col. 2, l. 52-55) the darker and colder it gets the more the hotter target image will stand out and be easily differentiated from the rest of the image (Fig. 9-11) thus changing the size of the pixel blocks. The warmer and closer to daytime the more the target object will blend into the background and thus a larger target object pixel block.

8. A stereoscopic image processing apparatus for calculating a parallax between a pair of images, comprising:

correlation evaluating means for evaluating a correlation of brightness between a first pixel block provided in one of said pair of images and a second pixel block provided in the other of said pair of images;

Tsuji discloses a parallax calculating apparatus which comprises a correlation evaluating means that evaluates a correlation between pixel blocks based on their luminance values (col. 5, l. 20-35 & Fig. 9 & Fig. 11).

weighting factor means for applying weighting a factor to each of pixel constituting said first and second pixel blocks in evaluating said correlation; and

Tsuji discloses a weighting factor means which applies a weighting factor (col. 5, l. 35-46).

weighting factor changing means for changing over said weighting factor in evaluating said correlation evaluating means, wherein;

Tsuji discloses a weighting factor changing means (col. 5, l. 35-46).

the weight factor is established to 0 at a surrounding region away from a central region of the first and second pixel blocks to reduce the size of the first and second pixel blocks in a small pixel block comparison, and

In the invention disclosed by Tsuji when the weight factor of 0 is established at a surrounding region away from the central region of the target object pixel block it causes the object pixel block to shrink based on the fact that if it were 1 it would be included in the smaller target object pixel block.

the weight factor is established at 1 the surrounding region away from the central region of the first and second pixel blocks to increase the size of the first and second pixel blocks in a larger pixel block comparison.

In the invention disclosed by Tsuji when the weight factor of 1 is established at a surrounding region away from the central region of the target object pixel block it causes the object pixel block to shrink based due to the fact that it is designed to find living or hot objects therefore the large pixel block comparison area (everything else) grows.

10. A stereoscopic image processing method of calculating a parallax between a pair of stereographic images, comprising the steps of:

evaluating a correlation of brightness between a first pixel block provided in one of said pair of stereographic images and a second pixel block provided in the other of said pair of stereographic images; and

Tsuji discloses a parallax calculating apparatus which comprises a correlation evaluating means that evaluates a correlation between pixel blocks based on their luminance values (col. 5, l. 20-35 & Fig. 9 & Fig. 11).

changing a size of said first and second pixel blocks

Tsuji discloses changing a size of first and second pixel blocks (Fig. 9-11)

wherein the changing of the first and second pixel blocks includes changing the pixel blocks in accordance with an area where the first pixel block is located.

Tsuji discloses changing the size of the pixel blocks (Fig. 9 R1 and R2) in accordance with an area where said first pixel block is located (Fig. 9 R1 and R2a).

12. The method according to claim 10, further comprising the step of dividing said area into two areas, an upper area and a lower area, by a horizontal boundary line.

Tsuji clearly discloses dividing the stereographic image into an upper and lower section with a horizontal boundary line (Fig. 5).

13. The method according to claim 10, further comprising the step of dividing said area into a plurality of areas by a plurality of boundary lines.

Tsuji discloses dividing the image area into a plurality of areas by a plurality of boundary lines (Fig. 5).

14. A stereoscopic image processing method of calculating a parallax between a pair of images, comprising the steps of:

evaluating a correlation of brightness between a first pixel block provided in one of said pair of images and a second pixel block provided in the other of said pair of images;

Tsuji discloses a parallax calculating apparatus which comprises a correlation evaluating means that evaluates a correlation between pixel blocks based on their luminance values (col. 5, l. 20-35 & Fig. 9 & Fig. 11).

applying weighting a factor to each of pixel constituting said first and second pixel blocks in evaluating said correlation; and

Tsuji discloses a weighting factor means which applies a weighting factor (col. 5, l. 35-46).

changing said weighting factor in evaluating said correlation.

Tsuji discloses a weighting factor changing means (col. 5, l. 35-46).

15. The apparatus of claim 1, further comprising a parallax calculating means for calculating the parallax between the pair of images based upon the correlation of brightness.

Tsuji discloses calculating the parallax between the pair of images based upon the correlation of brightness (col. 5, l. 20-36).

16. The apparatus of claim 1, wherein the region size changing means changes a size of the first and second pixel blocks based upon the location of one of the first and second pixel blocks within a corresponding one of the pair of images.

Tsuji discloses dividing the area of the stereographic images into a plurality of areas (Fig. 5) and the size of the pixel blocks (Fig. 9-11) are changed based on where they are in the image.

17. The apparatus of claim 16, wherein the region size changing means changes a size of the first and second pixel blocks based upon the location of one of the first and second pixel blocks within a corresponding one of the pair of images with respect to a horizontal line in said corresponding one of the pair of images.

Tsuji discloses changing the size of the pixel first and second pixel blocks (Fig. 9 & 11, R1, R2 and R4) when said first pixel block is located at least partially in the lower area (Fig. 5).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuji et al. (U.S. Patent Number 6,327,536) as applied to claim 17 above, and further in view of Matsumoto et al. (U.S. Publication Number 2001/0045979).

8. *The apparatus of claim 17, wherein the region size changing means changes a size of the first pixel and second pixel blocks such that said size of said first and second pixel blocks is larger above the horizontal line and smaller below the horizontal line.*

9. Tsuji fails to disclose the region size changing means changes a size of the first pixel and second pixel blocks such that said size of said first and second pixel blocks is larger above the horizontal line and smaller below the horizontal line. In an analogous stereoscopic image processing environment Matsumoto does disclose this limitation in figure 16. Figure 16 clearly shows the pixel blocks immediately above the horizontal line are larger than those below the horizontal line. It would have been obvious to one of ordinary skill in the art to which the applicant's claimed invention pertains to combine the region

size changing means of Tsuji with the pixel block sizes of Matsumoto in order to produce a more robust apparatus which maintains smaller pixel blocks in the area of primary interest the lower region.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN C. SCHAFFER whose telephone number is (571)272-0603. The examiner can normally be reached on 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571)272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JS
/Brian Q Le/
Primary Examiner, Art Unit 2624
Thursday, May 29, 2008